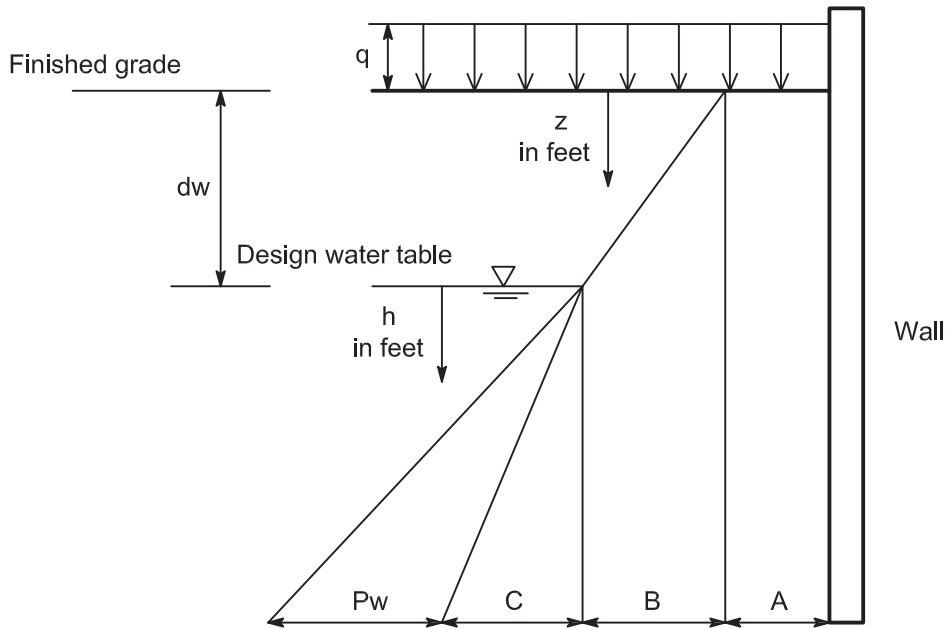


Passive Earth Pressure on 1-ft Wide Vertical Strip



- A =  $K_p (q)$  = Effect of uniform full coverage surface surcharge
- B =  $K_p \gamma_s (z)$  = Passive earth pressure above water table
- C =  $K_p \gamma' (h)$  = Passive earth pressure increment below water table
- Pw = 62.4 (h) = Hydrostatic pressure increment
- H = A + B = Static lateral earth pressure above water table ( $z < dw$ )
- H = A +  $K_p \gamma_s (dw)$  +  $K_p \gamma' (z - dw)$  = Static lateral earth pressure below water table ( $z > dw$ ) (Pw not included)

Conditions on information:

- Units of pressure, psf
- Backfill of granular material compacted to 96% maximum dry density by ASTM D1557
- No heavy compaction equipment used within 5 ft of wall
- $\gamma_s$  = saturated unit weight of granular backfill above water table, pcf
- $\gamma'$  = submerged unit weight of granular backfill, pcf
- $\phi = 35$  degrees = angle of internal friction of soil
- $K_p = \tan^2 (45 + \phi/2)$  = Passive earth pressure coefficient of soil
- Plane strain conditions (corner adjustment factors not included)
- Dynamic soil pressure not included

USCS Type	$\gamma_s$	$\gamma'$	$K_p$
GW	150	87.6	3.690
GP	142	79.6	3.690
SW	136	73.6	3.690

WLS COL 2.5-13

WILLIAM STATES LEE III  
NUCLEAR STATION UNITS 1 & 2

Passive Lateral Pressure on  
Nuclear Island

FIGURE 2.5.4-255c      Rev 2